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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,911	03/03/2004	ChiaHua Ho	MXIC 1535-1	3839

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EXAMINER

MENZ, DOUGLAS M

ART UNIT	PAPER NUMBER
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2891

DATE MAILED: 09/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/791,911

Applicant(s)

HO ET AL

Examiner

Douglas M. Menz

Art Unit

2891

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 April 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-95 is/are pending in the application.
- 4a) Of the above claim(s) 86-94 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) _____ is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-85, 95 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

Applicant's election of claims 1-85 and 95 dated 4/17/06 is acknowledged. However upon further review the following species restriction is deemed necessary by the Examiner in efforts to provide a thorough examination on the merits:

This application contains claims directed to the following patentably distinct species:

Species 1, claims 1-2, pertaining to a MRAM wherein the cell structure is a GMR device;

Species 2, claims 1,3, pertaining to a MRAM wherein the cell structure is a MTJ device;

Species 3, claims 1, 4, pertaining to a MRAM wherein the cell structure comprises a conductor layer;

Species 4, claims 1, 5, pertaining to a MRAM wherein the cell structure comprises an insulator layer;

Species 5, claims 1, 6, pertaining to a MRAM wherein the spin filtering element includes a ferromagnetic material;

Species 6, claims 1, 7-10, pertaining to a MRAM wherein spin filtering element includes a Heusler alloy;

Species 7, claims 1, 11, pertaining to a MRAM wherein spin filtering element includes an oxide based alloy;

Species 8, claims 1, 12-13, pertaining to a MRAM wherein spin filtering element includes a Mn based CMR material;

Species 9, claims 1, 14-16, pertaining to a MRAM wherein spin filtering element includes a Mn based ferromagnetic material;

Species 10, claims 1, 17-19, pertaining to a MRAM wherein spin filtering element includes a oxide based ferromagnetic material;

Species 11, claims 1, 20-21, pertaining to an MRAM wherein the spin holding element comprises a high spin diffusion length;

Species 12, claims 1, 22-24, pertaining to an MRAM wherein the spin holding element comprises Bi;

Species 13, claims 1, 25-29, pertaining to an MRAM wherein the spin holding element is metal;

Species 14, claims 1, 30-32, pertaining to an MRAM wherein the cell structure is an MTJ having first and second ferromagnetic layers separated by an insulator;

Species 15, claims 1, 30, 33-34, 40 pertaining to an MRAM including a MTJ and a 3d transition ferromagnet material; **[Note claim 40 has a 112 lack of antecedent basis problem with the language “the conductor”- no conductor is recited in claims 1 nor 30]**

Species 16, claims 1, 30, 35-36, pertaining to an MRAM including an MTJ and a 1st and 2nd ferromagnet layer comprising Heusler alloy;

Species 17, claims 1, 37-38, pertaining to an MRAM including an MTJ and a 1st and 2nd ferromagnet layer comprising an oxide based alloy;

Species 18, claims 1, 39, 41 pertaining to an MRAM wherein the cell structure is an GMR having first and second ferromagnetic layers separated by a conductor;

Species 19, claims 1, 39, 42-43, pertaining to an MRAM including a GMR and a 3d transition ferromagnet material;

Species 20, claims 1, 39, 44-45, pertaining to an MRAM including an GMR and a 1st and 2nd ferromagnet layer comprising Heusler alloy;

Species 21, claims 1, 39, 46-47, pertaining to an MRAM including an GMR and a 1st and 2nd ferromagnet layer comprising an oxide based alloy;

Species 22, claims 1, 30, 48-49, pertaining to an MRAM including a spin-valve MJT;

Species 23, claims 1, 30, 32, 49, 50-51, pertaining to an MRAM including a MJT and a pinning layer comprising an antiferromagnetic multilayer;

Species 24, claims 1, 30, 32, 49, 53-54, pertaining to an MRAM including a MJT and a pinning layer comprising a synthetic antiferromagnetic multilayer;

Species 25, claims 1, 30, 32, 49, 55-56, pertaining to an MRAM including a MJT and a pinning layer comprising an antiferromagnetic multilayer and a synthetic antiferromagnetic multilayer;

Species 26, claims 1, 30, 32, 49, 57-58, pertaining to an MRAM including a MJT and a pinning layer comprising a permanent magnet material;

Species 27, claims 1, 30, 59-62, pertaining to an MRAM including a pseudo-spin valve MTJ with a soft ferromagnetic layer;

Species 28, claims 1, 30, 63-65, pertaining to an MRAM including a MTJ comprising a granular material;

Species 29, claims 1, 39, 66-67, pertaining to an MRAM including a spin-valve GMR;

Species 30, claims 1, 39, 67-70, pertaining to an MRAM including a GMR and a pinning layer comprising an antiferromagnetic multilayer;

Species 31, claims 1, 39, 67, 71-72, pertaining to an MRAM including a GMR and a pinning layer comprising a synthetic antiferromagnetic multilayer;

Species 32, claims 1, 39, 41, 67, 73-74, pertaining to an MRAM including a GMR and a pinning layer comprising an antiferromagnetic multilayer and a synthetic antiferromagnetic multilayer;

Species 33, claims 1, 39, 41, 67, 75-76, pertaining to an MRAM including a GMR and a pinning layer comprising a permanent magnet material;

Species 34, claims 1, 39, 77-80, pertaining to an MRAM including a pseudo-spin valve GMR with a soft ferromagnetic layer;

Species 35, claims 1, 39, 81-83, pertaining to an MRAM including a GMR comprising a granular material;

Species 36, claims 1, 39, 84-85, pertaining to a MRAM with a GMR multilayer structure.

Species 37, claims 1, 95, pertaining to an MRAM array.

The species are independent or distinct because of the above mutually exclusive characteristics.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable. Currently, claim 1 is generic.

Applicant is advised that a reply to this requirement must include an identification of the species that is elected consonant with this requirement, and a listing of all claims readable thereon, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species or invention to be examined even though the requirement be traversed (37 CFR 1.143) and (ii) identification of the claims encompassing the elected invention.

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other invention.

Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Douglas M. Menz whose telephone number is 571-272-1877. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bill Baumeister can be reached on 571-272-1722. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DMM

8/31/06

Dang My 8/31/06